

User Manual

Keyboard Controller



○ Before use the product, please read this manual carefully.

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1 General

The KB-03M keyboard controller is designed on an ergonomic basis to control speed dome and integrated camera. The keyboard controller features a programmable menu on LCD and a series of functions: pan/tilt/zoom control, focus control, auto pan and preset tour setup, and pattern tour setup & etc. It can also set the alarm arming and alarm equipment linkage.

1.1 Main Features

- Pan/tilt, zoom, iris, focus controlling and parameter setting;
- RS-485 communication signal, controlling up to 255 domes or cameras;
- Menu on compact LCD;
- Set and control camera address, presets, auto pan and preset tour;
- Alarm activation and alarm linkage;
- Connection of up to 4 keyboard controllers in one system.

1.2 Technical Data

Communication port	RS485, Half Duplex
Communication Baud Rate	2400/4800/9600/19200 Bits/S
Transmitting Distance	1.2KM (0.5mm Twisted Pair)
Power Supply	5W, 9 ~ 12Vdc
Environmental Temperature	0 ~ +40
Relative Humidity	<90%
Dimensions	360x160x45 (mm)
Weight	5Kgs

2 Keyboard Installation

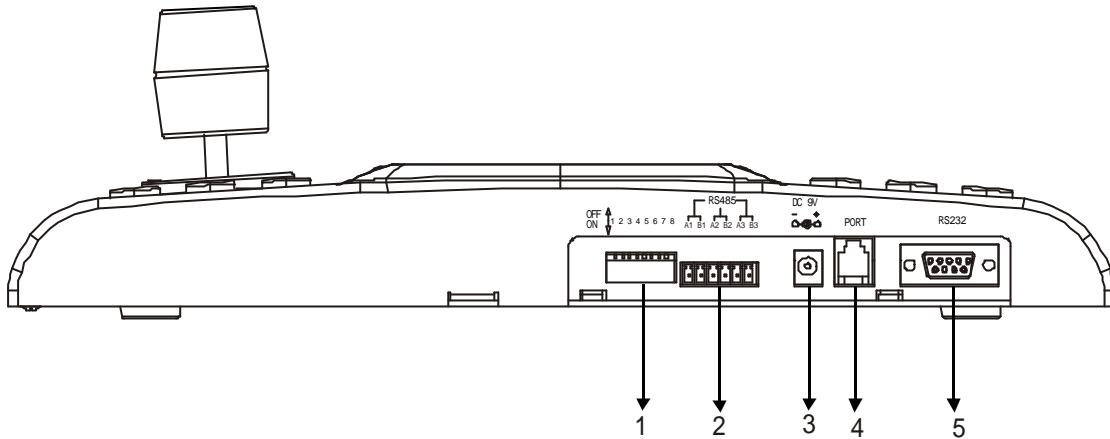
2.1 Transportation and Storage

- Handle the package with care to avoid rolling, collision and dropping during the transportation.
- Keyboard should be stored in warehouse with good ventilation and without acid, alkali and poisonous gas. The environment temperature should be -10 ~ +40, the humidity should be below 90%.
- Do not store the product with package open for more than six months. If the storage has exceeded one year, test the electronic system again under room temperature.

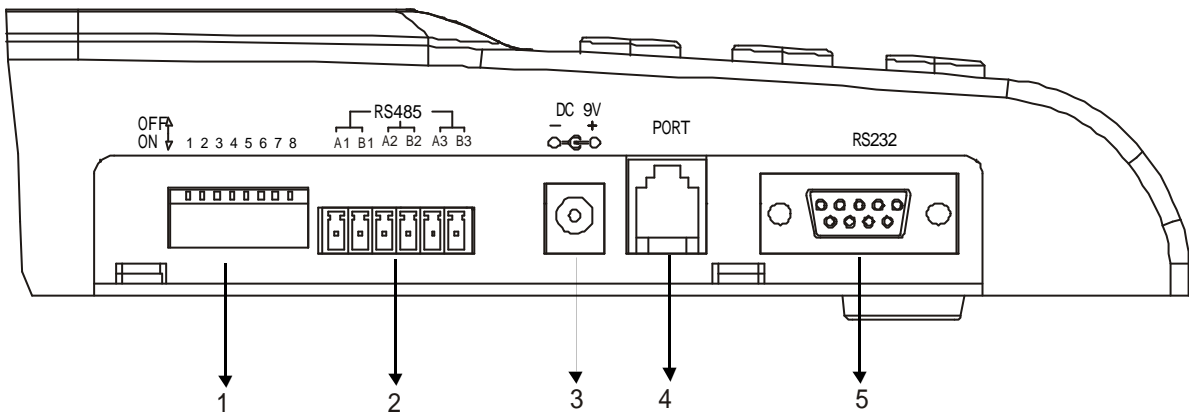
2.2 Precautions

- Install or adjust the keyboard under the guidance of qualified technician or engineer.
- Do not open the cover of the keyboard, otherwise you may risk to get an electric shock. Consult qualified technician for solutions if there is any problem.
- Do not operate this keyboard in a bad environment. The operating temperature should be within 0 to 40, and humidity should be less than 90%.
- Handle the keyboard with care. Avoid violent shaking or collision to the keyboard, otherwise the components of it may be damaged and the keyboard may not function normally.
- Do not apply excessive force or use strong detergent to clean the unit. Use a dry cloth to wipe off contamination on the keyboard. If necessary, use neutral cleanser to get rid of hard contamination.
- Do not operate the keyboard in a wet environment. If moisture or water goes into the keyboard, switch the power off and disconnect other cables to the keyboard immediately. Consult qualified technician for solutions. Dampness may damage the keyboard and arouse danger.

2.3 The Back View



Picture 1



Picture 2

1--DIP switch

Allways set bit 1, 2 as OFF ;

For bit 3~5, The setting should be as follows:

When the keyboard is connected to matrix, set Bit 3,4,5 as OFF;

When the protocol is FACTORY, set bit 3 as OFF and set bit 4, 5 as ON.

When the protocol is PELCO_D, set bit 3,4 as ON and set bit 5 as OFF.

When the protocol is PELCO_P, set bit 3,4,5 as ON.

Note: When the protocol is PELCO_D or PELCO_P , user can not set the camera parameters and pattern.

Note: The DIP switch setting should only be conducted when power is switched off.

The other 3 bits are for setting of the termination resistor connecting to RS485 . User can select to use as needed. More details are as follows:

When the termination resistor is connect to RS485(A1B1), set bit 6 as on;

When termination resistor is connect to RS485(A2B2), set bit 7 as on;

When termination resistor is connect to RS485(A3B3), set bit 8 as on.

2--RS485 port

3 lines of RS485 outputs(A1B1 A2B2, A3B3). A1B1 is the stand-by RS485 Bus; A2B2 is the RS485 Bus to control dome camera; and A3B3 is the RS485 Bus to control the multiplexer.

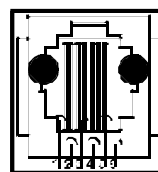
3--Power supply connection port

It is for connecting keyboard to DC9V power supply. Refer to Picture 2 for "+" and "-" positions.

Note: When the keyboard is connected to matrix, there is no need to connect power supply to this port as power is supplied from the matrix.

4--Special connection port to matrix

It is for connecting keyboard to matrix. The connector is RJ-11. Refer to the following picture and form for profile and pin designation.



Pin	1	2	3
Designation	GND	GND	A2
Pin	4	5	6
Designation	B2	GND	+12V

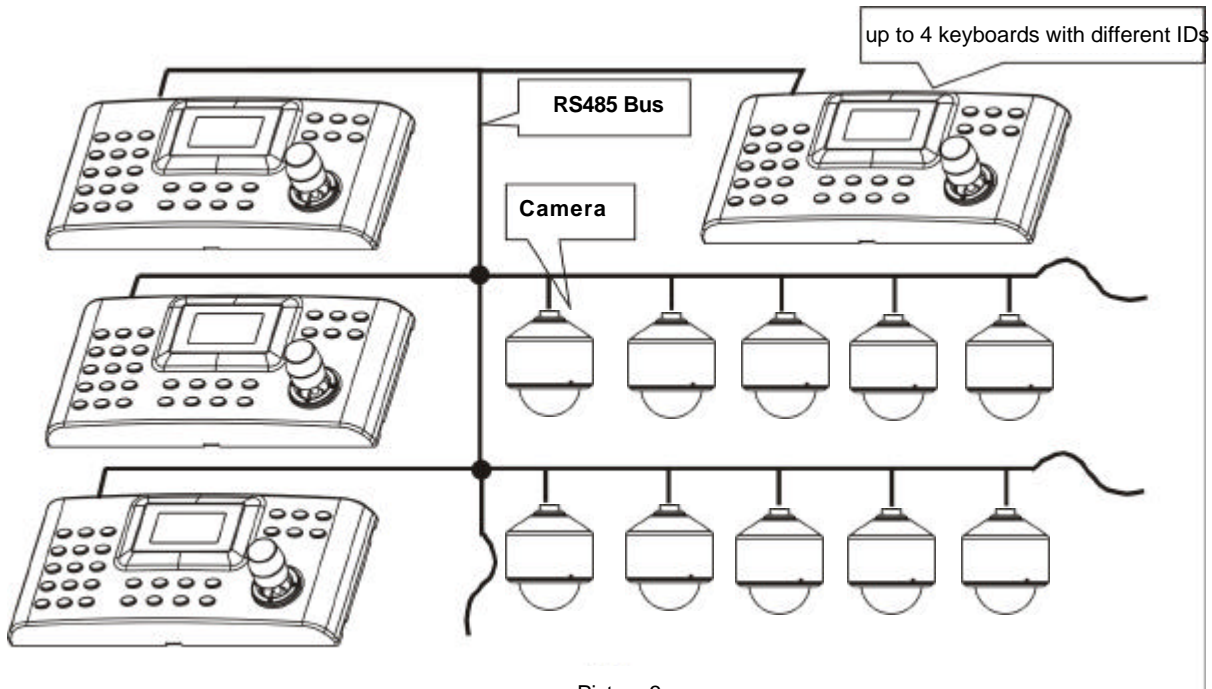
5--Standard RS232 port

It is for connecting keyboard to computer or multiplexer.

2.4 Keyboard and camera connection

Keyboards and cameras are parallel connected to the RS485 Bus. Refer to Picture3.

The system can connect up to 4 keyboards with different IDs. One ID of keyboard must be "1" and only one ID of keyboard can be "1".



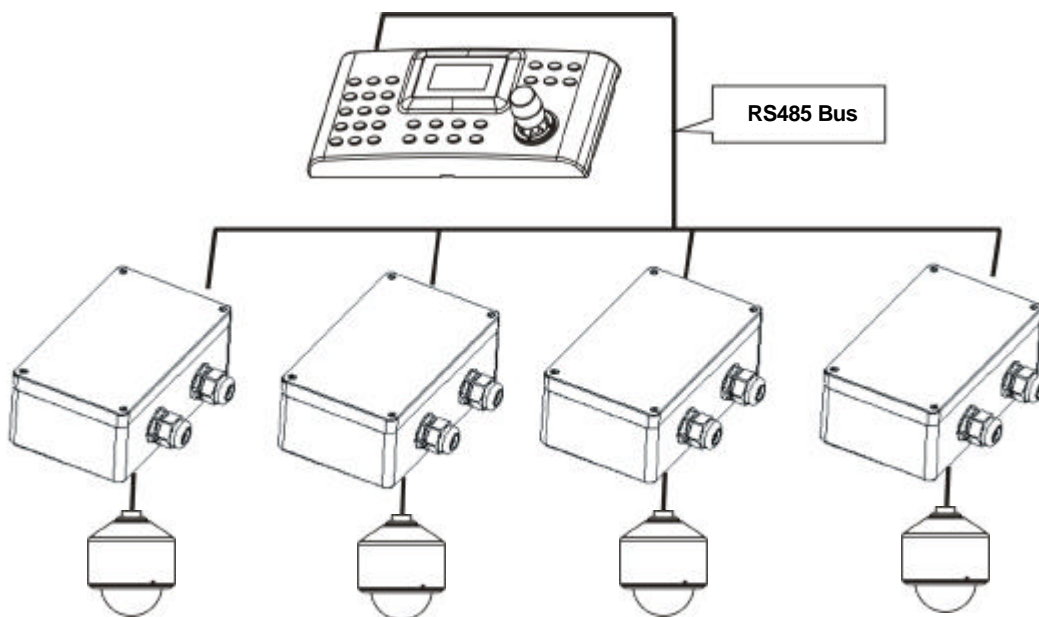
Picture 3

2.5 Keyboard, camera and alarm box connection

The keyboard is connected in the system to control alarm boxes and cameras. Each alarm box can only connect one camera. Please refer to Picture 4 for keyboard, camera and alarm box connections. Refer to User Manual of Alarm Box for its ID setting. Dome ID number set by keyboard must be the same as Alarm box ID number.

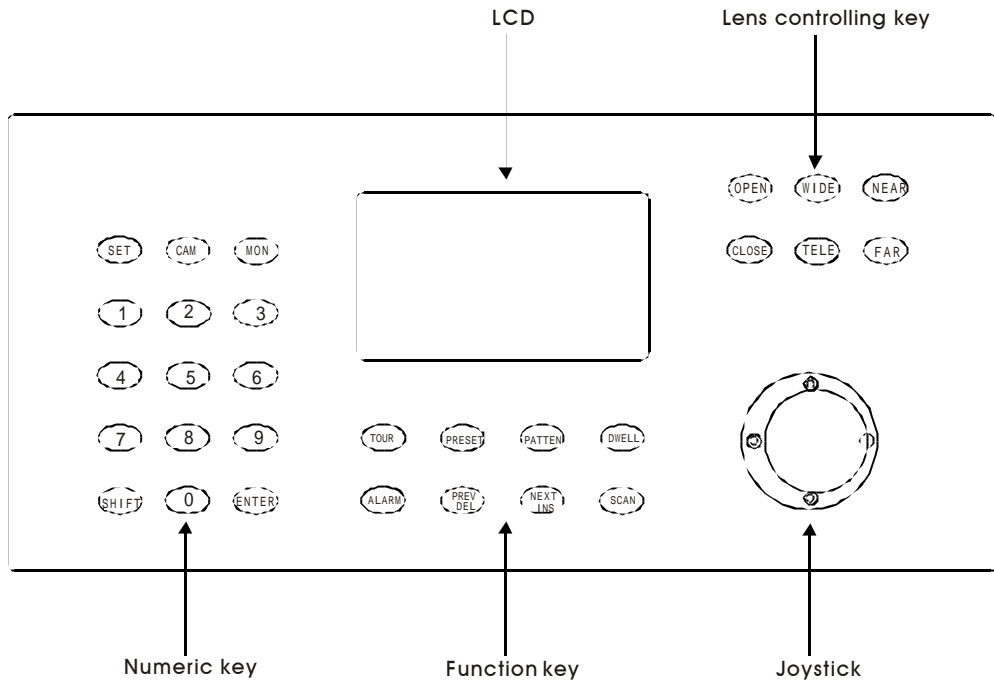
2.6 Keyboard and matrix connection

Refer to the User Manual of Matrix.



Picture 4

3 Keyboard Operation



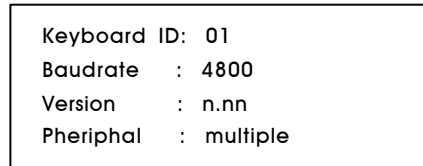
Picture 5

3.1 Keyboard Profile and Functions

- 1 LCD displays the current control status, the current menu and other necessary information. If there is operation the backlight of LCD will be lit to facilitate the operation. The backlight will switch off automatically in 30 seconds after there is no operation.
- 2 Lens controlling keys are to control iris, zoom and focus of lens, or other functions if combined keys are used.
- 3 Numeric keys are used to input the parameter value and select menu items & etc. Combined keys are used to reach other functions. Press DEL key for 2 seconds to clear a wrong input.
- 4 Use separate function key or combined function keys to conduct functional control.
- 5 The joystick is used to control the pan/tilt movements of camera and edit menu. It can also be used to conduct ZOOM control (only applicable to keyboard with a 3-axis joystick).

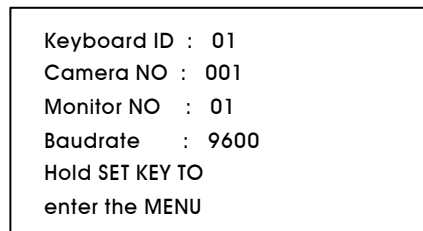
3.2 Power on

Make sure the connections are correct and then switch on the keyboard. LCD displays the information of the keyboard for 1 second as Picture 6 shows:



Picture 6

After 1 second, the keyboard enter the stand-by status and LCD displays the information as Picture 7 shows:



Picture 7


"Keyboard ID: 01" stands for ID number of the current keyboard in operation. The factory default ID number is 01.

"Camera No: 001" stands for ID number of the current camera in control. The default ID number after powered up is 001.

"Monitor No: 01" stands for ID number of the current monitor in operation.

"Baudrate: 9600" stands for baud rate of the current keyboard in operation. Factory default baud rate is 4800.

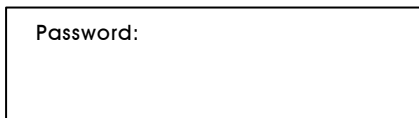
Under the stand-by status, keyboard can be used to input commands.

 **Note: The baud rate of the keyboard must be the same with the baud rate of equipment under control. To input a command to control camera, make sure ID number in the command is the same with the ID number of the target camera.**

3.3 Menu Operation

1 To enter Main Menu

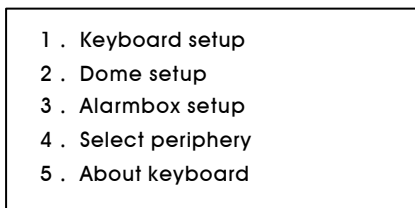
Press and hold SET key for 2 seconds. LCD displays "Password" as Picture 8 shows:



Picture 8

2 Input the 6-bit password

If the input password is correct, user can enter the main menu as Picture 9 shows:



Picture 9

3 Enter sub-menu

Press the item number using the keyboard numeric pad, or move the joystick up and down to the item number and move the joystick right to enter the sub-menu.

4 Return to higher level menu


Press SET key or move the joystick left to return to higher level menu.

5 Conduct functional operation

Press the item number using the keyboard numeric pad to enter the relative functional operation.

6 Complete functional operation as per instructions

Refer to the following sections for detailed information for the operations.

 **Note: The initial keyboard password is "000000". If user do not set a password, he can enter the main menu as picture 9 shows directly without inputting the password.**

3.4 Command Operation

The keyboard can conduct the controlling and setting commands to camera, pan/tilt and lens by functional keys, numeric keys and joystick. Please refer to the following sections for details.

Keyboard Command Input:

Joystick

Operate the joystick to conduct the up, down, left, right movements of camera and control the lens.

Single key command

The command only needs one key to complete. For example: the commands of Iris CLOSE/OPEN.

Combined Key Commands

Sometimes user needs to conduct a command by several functional keys or numeric keys. The "+" in a command means user should first press the key or input numeric parameter before "+" and press the key or input numeric parameter after "+" later. The key is a functional key. The alphabetic letter represents a numeric parameter.

For example, the command of calling a preset is:

N + PRESET

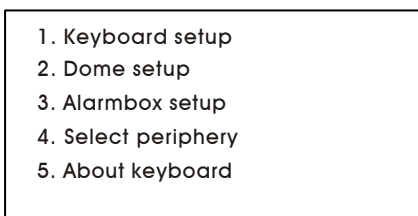
User should conduct the following operation continually:

- 1) Input numeric value N by keyboard numeric key;
- 2) Press PRESET key.

4 Set Keyboard Parameter

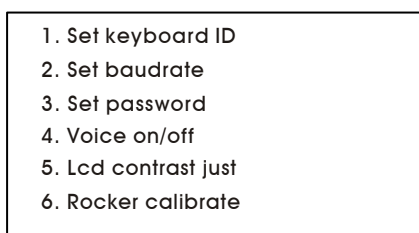
4.1 Set Keyboard ID

- 1 Enter the menu. LCD displays what Picture 10 shows:



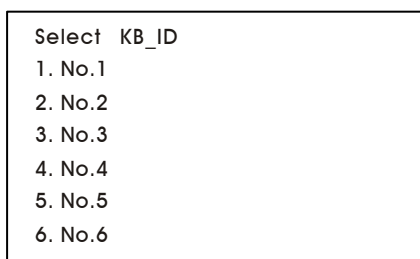
Picture 10

- 2 Press 1 to select Keyboard setup. LCD displays what Picture 11 shows:



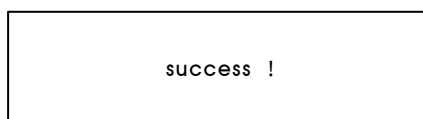
Picture 11

- 3 Press 1 to select Set keyboard ID. LCD displays what Picture 12 shows:



Picture 12

To select a keyboard, just press the item number using the keyboard numeric pad or move the joystick up and down to the item number and press ENTER to select it. The LCD displays SUCCESS as Picture 13 shows to confirm the selection.



Picture 13

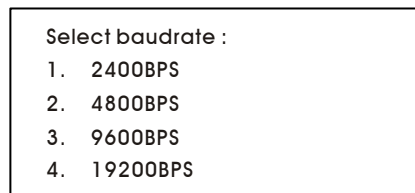
- 4 Press SET key to exit.

Note: The factory default ID number of keyboard is 1.

Note: When only one keyboard is connected in the system the ID number of it must be set as 1. If up to 4 keyboards are connected to the same system, one and only one keyboard ID must be set as 1, otherwise all the keyboards connected to the system can not work properly.

4.2 Set Keyboard Baud Rate

- 1 Enter the menu as Picture 10 shows.
- 2 Press 1 to select Keyboard setup. LCD displays what Picture 11 shows.
- 3 Press 2 to select Set baudrate. LCD displays what Picture 14 shows:



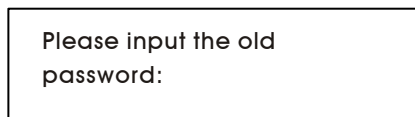
Picture 14

To select a baud rate, just press the item number using the keyboard numeric pad or move the joystick up and down to the item number and press ENTER to select it. The LCD displays SUCCESS as Picture 13 shows to confirm the selection.

- 4 Press SET key to exit.

4.3 Set Keyboard Password

- 1 Enter the menu as Picture 10 shows.
- 2 Press 1 to select Keyboard setup. LCD displays what Picture 11 shows.
- 3 Press 3 to select Set password. LCD displays what Picture 15 shows:



Picture 15

Input the old password and press ENTER key; if the input password is wrong, the LCD will display "error!" as Picture 16 shows. Input the password again until it's right. If pressing SET key user can exit the setting and return to the higher level menu. To continue the setting user should follow the instructions to input new password and confirm the new password as Picture 17 shows. Press ENTER after inputting and confirming the new password. If the confirmed new password is not the same as the first input new password, the system will not change the original old password.




Picture 16



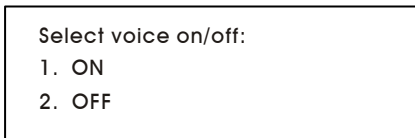
Picture 17

- 4 Press SET key to exit

 **Note: If the Password is set as "000000", user can enter the keyboard menu directly.**

4.4 Set Keyboard Beeper

- 1 Enter the menu as Picture 10 shows.
- 2 Press 1 to select Keyboard setup. LCD displays what Picture 11 shows.
- 3 Press 4 to select Voice on/off. LCD displays what Picture 18 shows.



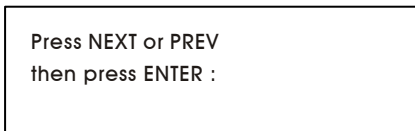
Picture 18

To select between ON and OFF, just press the item number using the keyboard numeric pad or move the joystick up and down to the item number and press ENTER to select it. The LCD displays SUCCESS as Picture 13 shows to confirm the selection.

- 4 Press SET key to exit.

4.5 Set LCD Contrast

- 1 Enter the menu as Picture 10 shows.
- 2 Press 1 to select Keyboard setup. LCD displays what Picture 11 shows.
- 3 Press 5 to select LCD contrast adjust. LCD displays what Picture 19 shows.



Picture 19

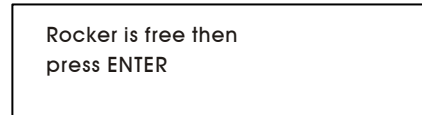
Press NEXT key to increase the contrast.

Press PREV key to decrease the contrast.

Press ENTER key to confirm the selection.

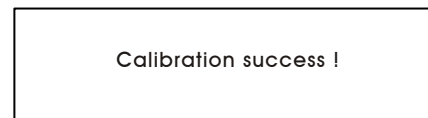
4.6 Set Joystick Calibration

- 1 Enter the menu as Picture 10 shows.
- 2 Press 1 to select Keyboard setup. LCD displays what Picture 11 shows.
- 3 Press 6 to select Rocker calibrate. Leave the joystick free in its original position. LCD displays what Picture 20 shows.



Picture 20

Press ENTER to complete the setting. LCD displays what Picture 21 shows to indicate a successful setting.

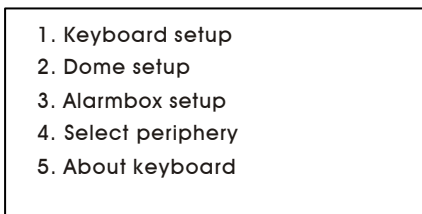


Picture 21

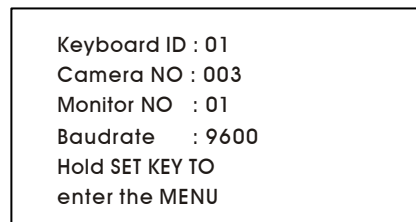
5 Control Camera and Pan/Tilt

5.1 Set Camera ID

1 Enter the menu and LCD displays what Picture 22 shows:

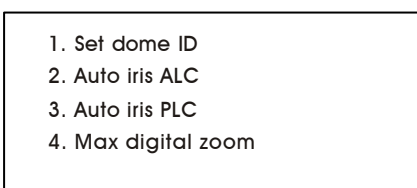


Picture 22



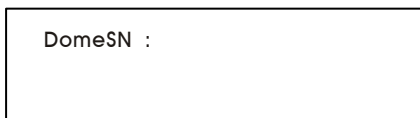
Picture 26

2 Press 2 to select Dome setup. LCD displays what Picture 23 shows:



Picture 23

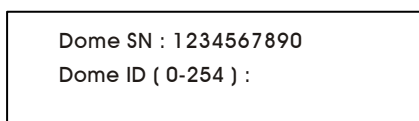
3 Press 1 to select Set dome ID. LCD displays: DomeSN: as Picture 24 shows.



Picture 24

Input the 10-digit serial number of camera, such as "1234567890" and press ENTER key.

LCD displays what Picture 25 shows. Input the ID number and press ENTER to confirm it.



Picture 25

4 Press SET key to exit.

Before the settings ensure the camera DIP switch is on the soft address status. Refer to User Manual of camera for details.

5.2 Select Target Camera to Control

C + CAM

Under the stand-by video status this command can select the target camera with ID number C . For example, to select camera with ID number 3, the LCD will displays what Picture 26 shows:

5.3 Control Camera Movement

Use the joystick to control the pan and tilt movements of camera. With the joystick, the user can control the moving direction and moving speed of camera as he wants.

5.4 Control Camera Lens

Only applicable to cameras with relating functions.

1 Zoom control

Press TELE, WIDE keys to conduct ZOOM control of camera. For keyboard with a 3-axis joystick, user can turn the joystick clockwise or anticlockwise to conduct zoom control.

2 Focus control

Press NEAR, FAR keys to conduct manual FOCUS control of camera.

Camera has reliable Auto Focus function. Generally camera adjusts Focus automatically to get clear image based on the distance of target object. Under special circumstances, user can conduct the above manual control. To return to the Auto Focus control, just move the joystick or conduct other operations.

3 Iris control

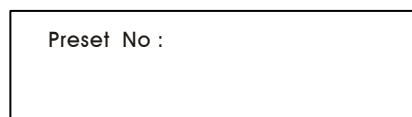
Press CLOSE, OPEN keys to conduct manual IRIS control of camera.

Camera has reliable Auto Iris function. Generally camera adjusts Iris automatically to get clear image based on the change of environmental illumination. Under special circumstances, user can conduct the above manual control. To return to the Auto Iris control, just move the joystick or conduct other operations.

5.5 Preset

1 Set preset

Press and hold PRESET key for 2 seconds under the stand-by video status. The LCD will display what Picture 27 shows:



Picture 27

After input the preset number just press ENTER key. Set other presets at the same way.

Press SET key to exit.

2 Call preset

N + PRESET

N is the preset number which has been set.

5.6 Home Position

1 Set home position

T + DWELL+ N + PRESET

- 1) T stands for the time interval between stopping operation to camera and the automatic turning to the home position. Valid numbers range from 1-255.
- 2) N stands for the number of preset to be set as the home position.

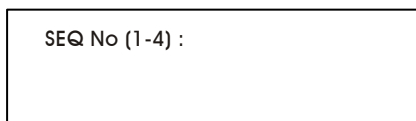
2 Delete home position

0 + DWELL + 0 + PRESET

5.7 Preset Tour

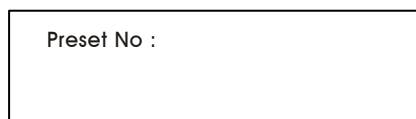
1 Set preset tour sequence

Press and hold TOUR key for 2 seconds under the stand-by video status. The LCD will display what Picture 28 shows:



Picture 28

After inputting the sequence number just press ENTER key. The LCD will display what Picture 29 shows:



Picture 29

Insert preset into the sequence one by one (after inserting a preset, press ENTER key to confirm it), then press SET key to exit.

2 Activate preset tour

T+ DWELL + N +TOUR

T stands for the dwelling time of each preset with effective value as 0-255 seconds.

N stands for the preset tour sequence number (1-4).

3 Delete preset tour

TOUR+ N + DEL

N stands for the preset tour sequence number (1-4).

5.8 Auto Pan

1 Set auto pan left limit

SCAN+ 0 +ENTER

2 Set auto pan right limit

SCAN+ 1 +ENTER

3 Activate auto pan

S + SCAN

S stands for the pan speed with effective value as 1-255. 255 is the highest speed.

5.9 Pattern

1 Pattern recording

- 1) Activate record

PATTERN+ S+ ENTER

S stands for the pattern sequence number with effective value as 1-4.


- 2) Recording

Send a series of commands to camera as scheduled through keyboard. Record the camera movements based on the set commands.

Only the Pan/Tilt movements and Lens operations can be recorded. Other commands can not be recorded.

- 3) Stop recording

PATTERN+ 0+ ENTER

 **Note: If the recording exceeds the stipulated time limit, the camera will end recording automatically.**

2 Pattern replay

S+ PATTERN

S stands for the Pattern sequence number with effective value as 1-4.

5.10 Set the Camera Parameters

1 Use the commands to set camera parameters

SET+ N+ SHIFT+ M+ ENTER

N stands for the command number of camera parameter setting. Refer to the attached "Command table of camera parameter setting" for the detailed value.

M stands for the parameter value of camera parameter setting. Refer to the attached "Command table of camera parameter setting" for the detailed value.

2 Set camera auto iris ALC

Two methods:

- 1) Set it as per 5.10.1 by command number No. 7.

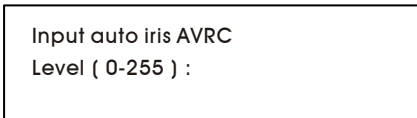
- 2) Set it through the menu:

A Enter the menu as Picture 22 shows;

B Press 2 to select Dome setup as Picture 23 shows;

- C Press 2 to select Auto iris ALC.

LCD display what Picture 30 shows:



Picture 30

- D Input the value and press ENTER key to confirm it.

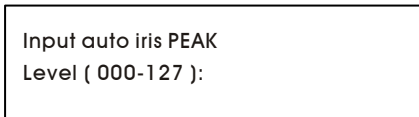
3 Set camera auto iris PLC

Two methods:

- 1) Set it as per 5.10.1 by command number No. 8.
- 2) Set it through the menu:

- A Enter the menu as Picture 22 shows;
- B Press 2 to select Dome setup as Picture 23 shows;
- C Press 3 to select Auto iris PLC.

LCD display what Picture 31 shows:



Picture 31

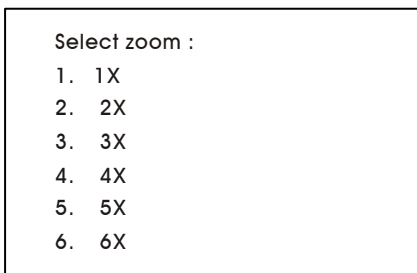
- D Input the value and press ENTER key to confirm it.

4 Set camera maximum digital zoom

Two methods:

- 1) Set it as per 5.10.1 by command number No. 9.
- 2) Set it through the menu:
- A Enter the menu as Picture 22 shows;
- B Press 2 to select Dome setup as Picture 23 shows;
- C Press 4 to select Max digital zoom.

LCD display what Picture 32 shows:



Picture 32

- D Input the item number of maximum digital zoom and press ENTER key to confirm it.

5.11 AUX Function Open/CLOSE

1 Open the AUX function:

N + OPEN

2 Close the AUX function:

N + CLOSE

N is Relay Number, effective value 1-255. AUX is special function for some products, not all products support.

Example:

Operation: 1 + OPEN

Function: Open No.1 relay.

Operation: 1+ CLOSE

Function: Close No.1 relay.

5.12 Call Macro Command

Operation: 10x+SET

X is macro number, effective value 1-8.

Example:

Operation:102+SET

Function: Call No. 2 macro.

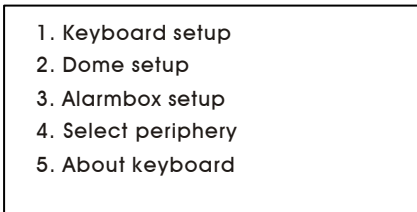
6 Control Alarm Box

The keyboard can conduct the following operations to alarm box:

- Set alarm input port status and the corresponding preset number.
- Arm or disarm the alarm input port.
- Set reset mode (manual/auto) and reset time of each alarm input port.
- Can acknowledge the alarm input manually.
- Control camera through alarm box without affecting camera's functions. The ID number of the connected camera is set by the DIP switch of alarm box.

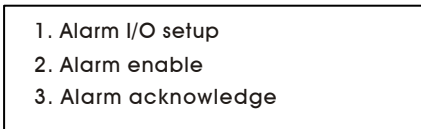
6.1 Set Alarm Input Port Status and Corresponding Preset

- 1 Enter the menu. LCD displays what Picture 33 shows:



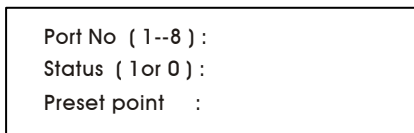
Picture 33

- 2 Press 3 to select Alarmbox setup. LCD displays what Picture 34 shows:



Picture 34

- 3 Press 1 to select Alarm I/O setup. LCD displays what Picture 35 shows:



Picture 35

Input the corresponding port number (1-8) and press ENTER key, then the cursor moves to the second line. Select the port status (1: Normal Open; 0: Normal Close) and press ENTER key. The cursor moves to the third line. Input the corresponding preset number and press ENTER key. The LCD displays what Picture 35 shows again. Set another port, status and preset point. After completing all the settings press SET key to return to higher level menu.

6.2 Set Alarm Arming/disarming and Reset Time

- 1 Enter the menu and LCD displays what Picture 33 shows.
- 2 Press 3 to select Alarmbox setup as Picture 34 shows.
- 3 Press 2 to select Alarm enable and LCD displays what Picture 36 shows:



Picture 36

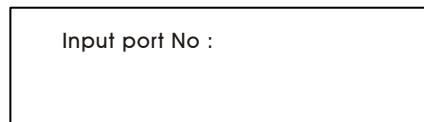
Press NEXT key to switch from alarm DISABLE or ENABLE, which is to disarm or arm an alarm.

Press PREV key or NEXT key to revise the reset time with effective value as 0-50. The alarm box needs manual reset when the reset time is set as 0.

- 4 Press SET key to exit.

6.3 Acknowledge Alarm Input Manually

- 1 Enter the menu as Picture 33 shows.
- 2 Press 3 to select Alarmbox setup as Picture 34 shows.
- 3 Press 3 to select Alarm acknowledge and LCD displays what Picture 37 shows.



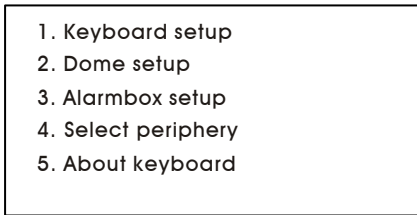
Picture 37

Input the port number to be acknowledged and press ENTER key.

4. Press SET key to exit.

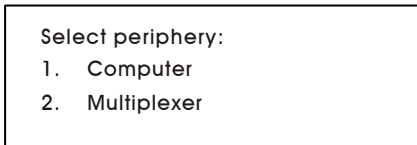
7 Select Periphery Equipment

- 1 Enter the menu and LCD displays what Picture 38 shows:



Picture 38

- 2 Press 4 to select Select periphery and LCD displays what Picture 39 shows:



Picture 39

- 3 Press 1 to select Computer.
- 4 Press SET to exit.

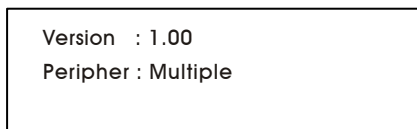
Now the computer connected to RS 232 port of keyboard has the ID number as 2. The baud rate of dome camera must be set as 9600BPS. The communication between keyboard and computer takes the format as 4800??N??8??1. If there are multiple keyboards connected in the system, no keyboard should set its ID number as 2.



Note: If Computer is selected, the keyboard can not control Multiplexer.

8 Keyboard Information Display

- 1 Enter the menu and LCD will display the information as Picture 38 shows;
- 2 Press 5 to enter About Keyboard and LCD will display information as Picture 40 shows:



Picture 40

- 3 Press SET to exit.

9 Control Multiplexer (Option)

- 1 Enter the menu and LCD will display the information as Picture 41 shows:

1. Keyboard setup
2. Dome setup
3. Alarmbox setup
4. Select periphery
5. About keyboard

Picture 41

- 2 Press 4 to enter Select periphery. LCD will display the information as Picture 42 shows:

Select periphery:
1. Computer
2. Multiplexer

Picture 42

- 3 Press 2 to enter Multiplexer;
- 4 press SET to exit.

The keyboard can control Sensormatic Multiplexer through RS232(1200bps),and control ATV Multiplexer through RS232 (9600bps), and control Impac Multiplexer through RS485(A3-B3) port . Refer to right command lists.

Explanation:

- FUN/ZOOM means press and hold FUN key first and then press ZOOM key.
- XX+ZOOM means a number key and release it, and then press ZOOM key.
- SHIFT+SHIFT/CAM means press and release SHIFT first, and then press SHIFT and CAM at the same time.

Sensormatic Multiplexer

Item	Sensormatic Commands	SAE Commands
1	FUNCTION	SHIFT/ENTER
2	ZOOM	SHIFT/ALARM
3	UP	SHIFT/TOUR
4	DOWN	SHIFT/PRESET
5	LEFT	SHIFT/PATTERN
6	RIGHT	SHIFT DWELL
7	LIVE	SHIFT/PREV
8	TAPE	SHIFT/NEXT
9	SEQ	SHIFT/SCAN
10	CALL	SHIFT/MON
11	CAM1--16	XX+CAM
12	REC1--16	XX+SHIFT/CAM
13	FUN/LIVE	SHIFT+SHIFT/PREV
14	FUN/UP	SHIFT+SHIFT/TOUR
15	FUN/DOWN	SHIFT+SHIFT/PRESET
16	FUN/LEFT	SHIFT+SHIFT/PATTERN
17	FUN/RIGHT	SHIFT+SHIFT/DWELL
18	FUN/ZOOM	SHIFT+SHIFT/ALARM
19	DISP CAM1--16	SHIFT+XX+SET

ATV Multiplexer

Item	ATV Multiplexer	SAE Commands
1	DISPLAY	SHIFT/ENTER
2	ZOOM	SHIFT/ALARM
3	FREEZE	SHIFT/TOUR
4	PIP	SHIFT/PRESET
5	QUADRANT	SHIFT/PATTERN
6	VCR	SHIFT/PREV
7	VCR BY PASS	SHIFT/NEXT
8	SEQUENCE	SHIFT/SCAN
9	CALL MONITOR	SHIFT/MON
10	CAMERA	XX+CAM

Impac Multiplexer

Item	Impac Commands	SAE Commands
1	Select main monitor	MON
2	Select subsidiary monitor	SHIFT/MON
3	Full-screen display	X+CAM
4	Freeze screen view	SHIFT/TOUR
5	Display scene view	SHIFT/PREV
6	Display record	SHIFT/NETX
7	Sequence switch	SHIFT/SCAN
8	Macro reset	X+ENTER

10 Command Table of Camera Parameter Setting

Command number	Command function	Parameter value	Parameter definition		Remarks	
0	Resume to the default setting	0				
1	Auto stop time	0-255	After 50*Data2 ms auto stop			
2	Auto focus recover time	0-255	0=cancel auto recover			
3	Auto Irls recover time	0-255	0=cancel auto recover			
4	R gain	0-255				
5	B gain	0-255				
6	AWB mode	0-255	0: automatic			
7	Auto Irls ALC	0-255				
8	Auto Irls PLC	0-127				
9	Maximum digital zoom	0-8	0: closing digital zoom			
10	DSS restriction	0-6	Value	Shutter speed		
				NTSC	PAL	
			1	1/60	1/50	
			2	1/60-1/30	1/50-1/25	
			3	1/30-1/15	1/25-1/12	
			4	1/15-1/8	1/12-1/6	
			5	1/8-1/4	1/6-1/3	
11	Exposure priority	0-10	Value	F-value		
			00	Automatic		
			01	F1.6		
			02	F2.2		
			03	F3.2		
			04	F4.4		
			05	F6.4		
			06	F8.8		
			07	F12		
			08	F17		
			09	F24		
			10	F34		

Command number	Command function	Parameter value	Parameter definition		Remarks	
12	Shutter priority	0-15	Value	Shutter speed		
				NTSC	PAL	
			0	Automatic	Automatic	
			1	1/2	1/1.5	
			2	1/4	1/3	
			3	1/8	1/6	
			4	1/15	1/12	
			5	1/30	1/25	
			6	1/60	1/50	
			7	1/120	1/100	
			8	1/180	1/150	
			9	1/250	1/250	
			10	1/500	1/500	
			11	1/1000	1/1000	
			12	1/2000	1/2000	
			13	1/4000	1/4000	
14	1/10000	1/30000				
15	1/30000	1/30000				
13	Backlight compensation	0-255	0: close			
14	Auto gain control	0-255	0: automatic			
15	WDR	0-255				